CHALLENGES & OPPORTUNITIES OF ICT IN MANAGEMENT EDUCATION

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ABSTRACT

Infusing ICT in education serves as a stepping stone towards the formation of Digital India. Convulsed by its importance, India has signed bilateral agreements with several countries to identify the necessary ICT tools. India US Working group has held 13 meetings (till date) to discuss the requisites for the proper ICT embodiment in various sectors. The liberation, globalization and privatisation introduced a paradigm shift in the management education of India. Endowed with genius minds, learners have been equipped with extensive varsities of knowledge education. Enrolments under management stream have undergone a drift increase from 23 lakh (2006-2007) to around 34 lakh (2011-2012). Gigantic crop up of a number of management educational institutes have also been reported. CAGR of around 12% have been accounted towards the business education. Industrial collaborations accompanied with foreign partnerships have further ushered the performance of B-schools yielding them with accreditations from all over the world. Consequently, the education level and its integration with ICTs have further emerged. The ICT accessibility has been rising tremendously. CAGR of 20% is expected over 2020. This paper presents the emergent challenges as well as opportunities of ICT in management education so as to fetch the existent ICT premises towards the efficacies. Warfare with illiteracy would be easily conquered with technological support on the backdoor and would become more successful if the tech-density covers the distant areas of borders and countryside.

Keywords: ICT, Management Education, Opportunities, Challenges, Enrolments Etc.

I. INTRODUCTION

Management Education serves as an authentic medium for the creation of knowledge network by its architects: management, administration and agents of change. Supported by scientific principles, it is regarded as an art of getting things done from others. Conclusive of its importance is the growth of mammoth management institutions, around 700-Degree Granting Colleges accompanied with massive enrolments.
India presents a distinctive advantage. The literacy rate is 74.04%, has shown a vigorous rise of 9% as per the census of 2011. Key statistics are as shown:

Table 1: Student Enrolments in Higher Education

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<tbody>
<tr>
<td>Post-Graduate</td>
<td>2492</td>
<td>1246</td>
<td>2 years</td>
<td>3296</td>
<td>1648</td>
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<tr>
<td>(Master’s)</td>
<td></td>
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<tr>
<td>Research</td>
<td>161</td>
<td>40</td>
<td>4 years</td>
<td>213</td>
<td>53</td>
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<td>(Doctoral)</td>
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(Source: DrEducation.com)

Further, India has been a favourite IT hub for the world, as the sector reported a 10.2% and 14.1% growth in global as well as domestic market during FY2013 (NASSCOM). However, the sector is expected to make a mark by yielding a growth rate of 30% in FY15.

**Fig.1**: Growth of Higher Education  
**Fig.2**: Growth of Student Enrolment (‘000’)

**Fig.3**: Forecast of Domestic Revenue  
(Source: IBEF)
IT infrastructure and IT services are likely to grow by 4% and 8.4% FY14 (IBEF). Also, India enjoys numerous contributions from the existing key players like Wipro, Infosys, IBM Corporation etc.

![Fig.4: Contributions by each sector](Source: NASCOM)

These figures are not merely an evidence of increase in the number of computers or its prevalent usage in financing, manufacturing etc sectors, but an emphatic rise of the diffusion of technology for the overall development of the nation.

Education sector, the nucleus of progression, too, has not been devoid. These ICT trends caused a path-breaking influence over the teaching methodologies. The Digital Inclination obstructs the conventional teaching pedagogies and demands indispensable orientation towards new technology to ease the education learning. Because learning when integrated with technology encourages technology literacy and helps students in the goal achievement. Several online sources allow teachers to enrich the course structure. Inexpensive tablets, overhead projectors, smart-boards, laptops etc impel the course designers to imbibe the course structure with technology. Online classrooms further, promote education for all. Technology has revamped the entire platform. A teacher now-a-days should play the role of technology facilitator too.

II. LITERATURE REVIEW

Oliver (2002) called ICT as a change agent for contemporary education and delineated its impact on the curricula, student learning and knowledge building. The study intensified that although the impact of ICT is diminutive, but it will considerable grow larger in the coming time period. Rao (2004) quested in his paper the infrastructural development of SWAN so as to aid the states for access to ICTs. Several applications were found to be deficit of the required characteristics by CEG-IIMA. He expressed the need for reengineering of the backend process, in light of security, accessibility and privacy. Private entities desirous of undertakings should be welcomed. Architectural arrangements should be such that it is capable of administering the working kiosks. Berman (2008) discussed the pioneering applications of ICT i.e. utilization of Simputer in India, University level e-learning projects at Sri Lanka and usage of diverse education mediums at Bhutan. Desai (2010) believed that teaching is incomplete without the application of ICT. 24 * 7 availability of video lectures has been a huge evolution. It also has an emergent role in schools as digital education has become a huge support. Vrasidas etal (2010) concluded that time constraints, nonexistence of required infrastructure, tools etc makes teachers resistant to the integration of ICT.
with education in Cyprus. The study presented the need to develop the adequate technologies and managing sessions to imbibe the teachers with sufficient knowledge so as to overcome problems. Kozma had researched that traditional role of ICT was just an informatics or used as an instruction aid but now-a-days countries like Singapore, Norway, United States etc have led to the formation of ICT centres which aims to assimilate the ICT led systems with education pertaining to all from primary to post graduation. Roy (2012) found that nearly 72% of India’s population lives in rural areas and lacks basic amenities for education. He considers the existence of necessary infrastructure, general awareness and participation of community to be vital. Significant contributions by National Institute of Rural Development are regarded as another crucial aspect. A proposed model with ingredients like rural community centre, rural kiosk machine, ICT-training centres and ICT rural development department is also devised. Researcher contemplates these key initiatives for the development of ICT enables rural India.

III. ICTs IN CLASS ROOMS

Technology has undergone a quantum leap. Penetration of ICT in schools has already spread magical influence among the students. Facilities like Smart Class with provisions of simulation, web links, diagram makers, assessment sheets etc. touted excellent results. Numerous players like HCL, Tata Interactive Systems, S. Chand Harcourt, Learn next etc. have already taken up the battleground. Besides schools, dispersion of cloud computing, e-learning, UGC-INFONET, Wi-Fi enabled campuses, multimedia labs, online educative videos, 3d presentations, lucid graphical data, modelling etc in management colleges have made a significant mark in the overall learning process of management education.

Distinguished ICTs:

- UGC-INFONET: This digital library provides rich content of several management journals by gaining membership only. An access to this permits the universities to use the available e-resources.
- Web OPAC: GUI enables quicker indexing of the available material in the library.
- Electronic Books: Ebooks allows students to read, learn, compare and outshine. The all time availability, portability accelerates their learning of management concepts, strategies etc.
- Interactive sessions: Online lectures through video conferencing by eminent personalities on management contexts enrich the knowledge pool of students.
- Multimedia Content: Availability of videos facilitates better understanding of the concepts of production and operation management.
- Learning Management System: The software permits the instructor to quote in the valuable management learning material like chapter wise presentations, assignments etc. for the students. Virtual classrooms through Skype are also popular these days.

IV. KEY CHALLENGES

But proper embodiment of ICT presents few challenges:

Uncertainty- Uncertainty serves as one of the greatest challenges as it may invade into the conduit of success. Tech up gradations has been phenomenal. Fear of obsolete has been concern for several. A concrete set up of research and development cell, with its sub-centres in all the states, should be established. These should be oriented towards the continuous research for better tech support in the future. It should also be concerned with the forecast of demand of current technology in the
upcoming years and must gauge the available platforms for its supply. Latest tech challenges from outside the country are also one among the major issues to be addressed by the R&D cell. However, necessary measures should always be made towards making India a self reliant technology giant and a hub of export.

Regulatory Risk- Regulatory risk poses another severe challenge. In our country, no such recommendations regarding transparent directives have been issued. There is a need of a fair, non-discriminatory regulatory body which should be authorised to frame the required legalisations and conduct audits. Restructuring of the existing structures, registration and regulation of the constitutions, promotion of self regulations, prohibitions of unfair practices, inspections, penalties etc should be the primary functions of the body. Central Government however, instituted following initiatives via policies: The NPE -2012 policy aims to setup various ICT Academies in the province of State government and UTs. NPIT-2012 policy focuses to endow various sectors with more of IT and ITeS -an endeavour towards making India more Digital. The security concerns and immediate requirement of ICT network causes a thrust to develop essential Hardware Support within the country. Electronic System Design and Manufacturing (ESDM) of our country have already taken initiatives in this regard. An endeavour towards National Knowledge Network which focuses to coalesce all the institutions and universities with the high speed data communication has also been launched. As on Jan, 2013 953 links have already been established. NPIT focuses to create at least one e-literate in every family. The development so far necessitates constituting a regulatory body.

Expense- To empower a non-digital system with latest technology support, huge installation cost is required. Govt aided centres at each district level should be established which extends aid towards any financial, manpower, purchase etc support. Manpower training to equip them with the latest technological education will also require more cost. Specialists across the world must be hired so as to impart trainings about the prevalent technology structure. Informational sessions would furnish the users with the required knowledge and enable them to suffice the intended standards. Further, the existence of several small educational institutions demands a special policy because if they are unable to cope with the emergent technology, then they would end by loosing up their students.

Security Breaches- Security breaches also serves as an important challenge. Cyber crime has changed dramatically and has become more powerful.

Fig.5: Cyber attacks
(Source: Mandiant)
Money Lauanders, Hackers, Malicious viruses and worms may easily theft or modify the data as a resultant of which there may be loss of reputation, revenue generated and investor’s confidence, as well. Several other attacks include spoofing, tampering, repudiation, information disclosure, denial of service, elevation of privilege etc. The impacts are dreadful. Maintenance of databases may diverge the havoc. Security measures need to be upgraded with the passage of time. A series of steps involved include evaluation of the current environment, development of new security policy and finally implementation. A careful evaluation involves the determination of assets with potential risk and existing technology assessment so as to strategically develop a new security plan which will evade the security risks. The action plan needs consideration of the existing models, the management spectrum and the costs associated. Crucial up gradations to the existing software is another mandate. Once the relevant details are extracted, action plan is formulated then implementation becomes the prime concern. For this the physical security to the entire infrastructure is an essential condition because an ease of access to the computer hardware may easily circumvent the security policy. Next, is to develop security policy for network perimeter, in which protection of Host layer, Application layer and Data layer is also mandatory. Group policy, antivirus and encryption act as defensive mediums against malicious codes.

Health- Harmful rays discharging from the devices may cause severe health hazards and even pollute the environment. A persistent contact with the devices may lead to the diseases like eye infection, cancer, heart and muscle problems, obesity etc. Future hardware, chip sets to be developed must try to circumvent these troubles. For this, suitable scientific procedures must be enumerated. Tech addiction can always prove to be disastrous; hence time scheduling is also very important. Several government aided as well as private NGOs may bridge the gap between unknown and known. They must initiate health programmes and impart masses with important education, so that health risks can be easily targeted.

Death of Written Arts- Written arts were an important medium of exchange. The art of writing letters was mastered by few and serve as an influential mean to eradicate the boundary barriers. ICT presents education curricula an immense challenge to nurture the current generation with the old writing skills, so that the habit does not budge away. It has also been observed that several written arts were unpopular, until an e-version of it was prepared. Hence, this custom would cause the death of written material. For e.g. the saga of ‘lord of rings’ was unpopular until a film was prepared on it. Fundamental steps in this regard include the obligatory reading in the library by the students. Special lectures for generating education in this regard would be another vigorous step.

V. OPPORTUNITY PROFILE

ICT has immense opportunities over the remote areas. Isolated places where only little population resides, have minimal management education scope. ICT may serve as a vehicle of transformation in those areas. Various education houses can be opened, where the requisite ICT appliances can be placed. A technical expertise along with the supporting staff of nearby residence should be selected and appointed. Monthly surprise visits should be made by governmental officials to examine the conduct. Prototype models should be developed for few cities only. The encountered issues should be resolved first, and then expansionary plans should be formulated. A cautious watch over the supply of materials, defective material repair, quality control checks is a mandate. ICT also possess another opportunity for social welfare. It may act as a change agent for special children. When technology becomes handier, the deficiency can be transformed into efficiency. Those, unprivileged who cannot go to colleges, due to impaired vision, hearing ability etc ICT may
orchestrate in accordance. Separate units should be constructed in this regard. Some special amenities like vans for transportation, food, Medicare etc must be provided to these children, so that disruptions never evolve. ICT serves as valuable information exchange tool for students living nearby the borders. Such areas offer varied difficulties for education completion, so necessary classrooms equipped with ICTs may prove fruitful for them. They may learn through the global platforms. Necessary staff is also mandatory. Government must make it essential for all its allied sectors to undertake the above steps, so that education revolution can remove the shackles of illiteracy.

VI. CONCLUSION

ICT can revolutionize the education sector. Government have been engaged towards building a Digital India. Policies which are capital intensive in nature have already been devised and are in the execution phase. A careful evaluation of the previous literature have also been undertaken so as to gain an insight over the challenges and opportunities of ICT in different countries. This paper has enlisted the various challenges which can circumvent the under-performance. Uncertainty, formation of regulatory body, expense, security breach, health and death of written arts poses severe threat. However, ICT has immense opportunities available in isolated places, border areas as well as for special children.

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